UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,151	02/17/2004	Xiao-Qi Zhou	200310352-1	6042

22879 7590 01/10/2007

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
JACKSON, MONIQUE R	
ART UNIT	PAPER NUMBER
1773	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/781,151	ZHOU ET AL.	
	Examiner	Art Unit	
	Monique R. Jackson	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/3/06 has been entered. Claims 1-31 are pending in the application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 31 recites that the receiving layers are "devoid of a dedicated binder" however it is noted that "a discharge control agent", particularly the instantly claimed polyelectrolyte or sulfonated polystyrene, as well as the hollow organic pigments (see instant specification, page 16, lines 10-15) can read upon the term "binder" (see instant specification, page 4, lines 17-21) and hence the claim is indefinite since the term "dedicated binder" or "devoid of a dedicated binder" is not clearly defined.

Claim Rejections - 35 USC § 103

4. Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malhotra (USPN 5,709,976) in view of Cartier. Malhotra teaches a coated paper suitable for both ink jet printing processes and electrostatic printing process such as electrophotography including color

copiers, wherein the coated paper comprises (a) a substrate; (b) a hydrophobic barrier layer present on both sides and containing a water-insoluble binder and water or alcohol soluble anticurling agents (*"base coating layers"*); and (c) image receiving coatings situated on the top of both hydrophobic barrier layers (Abstract; Col. 4, lines 1-27, 37-41, and 51-61; Col. 28, lines 1-4.) Malhotra teaches that the substrate is preferably a paper substrate made of sized blends of wood kraft fibers that can be internally reinforced with a synthetic resin (Col. 5, line 44-Col. 6, line 15.) Both sides of the substrate are coated with hydrophobic barrier layers having a typical thickness from about 0.1 to about 10 microns, wherein the barrier layers comprise a suitable polymer hydrophobic component such as polyurethane or polysiloxane, and a suitable anticurling agent such as those in Col. 10, line 45-Col. 11, line 44.) Malhotra teaches that the receiving layers have a typical thickness from 1 to about 25 microns, and include (1) a polymeric binder, (2) a dye fixative, (3) a filler or pigment, (4) a lightfastness inducing agent, and (5) a biocide; or in the case of toner receiving layers (1) a polymeric binder, (2) an antistatic agent, (3) a lightfastness inducing agent, (4) a filler or pigment, and (5) an optional biocide (Abstract; Col. 6, line 61-Col. 7, line 23.) Malhotra teaches that a preferred composition range for the toner receiving coating is about 10 to about 35 weight parts binder, about 3 to about 5 weigh parts antistatic agent, about 0.4 to about 8 weight parts lightfastness inducing agent, about 86 to about 50 weight parts filler, and about 0.6 to about 2 weight parts biocide; based on 100 parts total (Col. 7, line 63-Col. 8, line 6.) Malhotra teaches that suitable dye fixatives and antistatic agents including quaternary acrylic copolymer latexes, monoammonium compounds, phosphonium compounds, and sulfosuccinates and sulfosuccinamates as antistatic components (Col. 16, line 65-Col. 20, line 50.) Malhotra further teaches that the filler components include hollow

microspheres, solid microspheres, inorganic pigments such as calcium carbonate, clay, zinc oxide, titanium dioxide, hydrated alumina, and barium sulfate as well as fluorescent pigments, and mixtures of two or more (Col. 24, line 26-Col. 25, line 31.)

Hence, Malhotra teaches a media sheet for color electrophotographic printing comprising a) base stock, b) base coating layers coated on both sides of the base stock and comprising binder and anticurling agents, and c) receiving layers, different from the base coating layers, coated directly on the base coating layers, wherein the receiving layers include binder, antistatic agents, and fillers or pigments including hollow particle pigments, both inorganic or polymeric, as well as inorganic pigments as instantly claimed. Though Malhotra does not specifically teach that the base coating layers also comprise inorganic pigments and a discharge control agent or antistatic agent as in the receiving layers, and that the antistatic or discharge control agent is a polyelectrolyte or sulfonated polystyrene as instantly claimed, one having ordinary skill in the art at the time of the invention would have been motivated to include conventional additives such as the disclosed pigments and fillers into the base layers as well, and further, Chartier et al teach that by incorporating a discharge control agent, such as the instantly claimed sodium salt of a highly sulfonated polystyrene, into the coating of a coated paper substrate, improvements are provided in terms of feeding properties when the coated paper is utilized in a friction-feed printing process. Hence, based on the teachings of Chartier et al, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a discharge control agent, such as a sodium salt of a highly-sulfonated polystyrene, in the paper coating compositions of the invention taught by Malhotra, in a sufficient amount (such as 6 weight parts as taught in the example by Chartier et al) and molecular weight to provide the desired

conductive properties to reduce the electrostatic charges generated by friction in printer or photocopier paper feeds, as taught by Chartier et al (Col. 3, lines 21-59.) Further, one having ordinary skill in the art would have been motivated to utilize routine experimentation to determine the optimum content of each component, the coating thickness or coating weight, and optimum pigment particle size and particle size distribution to utilize in the coating layers based on the desired color, coating and matting properties, and particular end use, wherein ranges as instantly claimed are typical in the art. With regards to Claims 3 and 4, though Malhotra teaches that the substrate is preferably paper made from woody fibers internally reinforced with synthetic resin, it is well known in the art that plastic films are suitable synthetic materials equivalent to woody paper substrates for use in producing coated printing medium and one having ordinary skill in the art at the time of the invention would have been motivated to utilize polymer films as the base and/or determine a suitable base material and internal bond strength for a particular end use of the printing medium.

5. Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tani et al (US 2003/0224192 A1) in view of Chartier et al. Tani et al teach an electrographic image-receiving sheet and a process for image formation using the same wherein the sheet comprises a support and a toner image-receiving layer for receiving a color or black toner disposed on at least one surface of the support, and other layers suitably chosen as necessary, such as a protective layer, an intermediate layer, an undercoat, a charge control (antistatic layer) and a smoothing layer (Abstract; Paragraph 0016 and 0102.) Tani et al teach that the support is not limited and may be raw paper of natural or synthetic pulp, synthetic paper, synthetic resin sheet, coated paper, laminated paper and the like, having a single-layer structure or a laminated layer structure

in which two or more layers are disposed (Paragraph 0022-0024.) The toner image-receiving layer contains a thermoplastic resin, natural wax or releasing agent, colorants including organic and inorganic pigments wherein hollow particles are preferred from the viewpoint that they have excellent heat conductivity during image fixing (0105, 0180) in a content of 0.1 g/m2 to 8 g/m2 in the toner image-receiving layer (0185.) Tani et al teach that the toner image-receiving layer may further include various additives that may be added to improve the thermodynamic properties of the layer including plasticizers, fillers, charge control agents and dispersants (0190) wherein as the filler, various inorganic fillers or pigments such as silica, alumina, titanium dioxide, zinc oxide and calcium carbonate, can be used, with 4nm-120nm silica and 4-300nm alumina preferred, in an amount of 5 parts by mass to 2000 parts by mass, relative to the dry mass of the binder in the layer where the filler is to be added (0201-0208.) Tani et al specifically teach that the filler preferably has a small particle diameter for if the particle diameter is large, the surface of the toner image-receiving layer tends to become rough (0203.) Tani et al also teach that it is preferred that the toner image-receiving layer contains a charge control agent to adjust toner transfer and adhesion, and to prevent charge adhesion wherein the charge control agent may be any charge control agent known in the art including surfactants such as cationic, anionic, amphoteric or nonionic surfactants, polymer electrolytes including cation-modified polystyrene and electroconducting metal oxides (0213-0216.) Tani et al teach that the toner image-receiving layer is coated so that the amount of coating in mass after drying is preferably 1 g/m2 to 20 g/m2, more preferably 4 to 15 g/m2, with a preferred thickness of 1 to 30 microns, more preferably 2 to 20 microns (0227-0228.) Tani et al further teach that the sheet preferably includes a backing layer on the opposite side of the support to the toner-receiving layer and may

be the same composition as the toner-receiving layer, and may also include an undercoat, contact improving layer or intermediate layer between the support and the toner-receiving layer containing various additives as included in the toner-receiving layer (0257-0265.)

Though Tani et al do not specifically teach that the intermediate or undercoat layers also comprise inorganic pigments and a discharge or charge control agent as in the receiving layers, Tani et al provides a suggestion of utitilizing the same additives as in the receiving layers and hence provides a suggestion for utilizing inorganic pigments and the charge control agent. Though Tani et al do not specifically teach that the discharge or charge control agent is a sulfonated polystyrene or sodium salt thereof as instantly claimed, one having ordinary skill in the art at the time of the invention would have been motivated to include conventional discharge control agents wherein Chartier et al teach the instantly claimed sodium salt of a highly sulfonated polystyrene is a suitable discharge control agent in the coated paper art. Hence, based on the teachings of Chartier et al and the Tani teaching of modified polystyrene, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a conventional discharge control agent, such as a sodium salt of a highly-sulfonated polystyrene, in the paper coating compositions of the invention taught by Tani et al in a sufficient amount (such as 6 weight parts as taught in the example by Chartier et al) and molecular weight to provide the desired conductive properties to reduce the electrostatic charges generated by friction in printer or photocopier paper feeds, as taught by Chartier et al (Col. 3, lines 21-59.) Further, one having ordinary skill in the art would have been motivated to utilize routine experimentation to determine the optimum content of each component, the coating thickness or coating weight, and optimum pigment particle size and particle size distribution to utilize in the coating layers based

on the desired color, coating and matting properties, and particular end use, wherein ranges as instantly claimed are typical in the art. With regards to Claim 4, though Tani et al teach various base materials including natural pulp and synthetic paper, Tani et al do not specifically teach the internal bond strength of the base material. However, one having ordinary skill in the art at the time of the invention would have been motivated to determine a suitable base material and internal bond strength for a particular end use of the printing medium, wherein base materials having an internal bond strength within the claimed range are typically utilized in the art.

6. Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (US 2003/0207089 A1) in view of Chartier et al. Nakamura et al teach an electrographic image-receiving sheet and a process for image formation using the same wherein the sheet comprises a support and a toner image-receiving layer disposed on at least one surface of the support, and an intermediate layer disposed between the support and the toner image-receiving layer, and may also comprise other layers suitably chosen as necessary, such as a protective layer, an undercoat, a charge control and a smoothing layer (Abstract; Paragraph 0016.) Nakamura et al teach that the support is not limited and may be raw paper of natural or synthetic pulp, synthetic paper, synthetic resin sheet, coated paper, laminated paper and the like, having a single-layer structure or a laminated layer structure in which two or more layers are disposed (Paragraph 0017-0020.) The toner image-receiving layer contains a thermoplastic resin, less than 40% by mass of pigment, (0139-0141) including organic and inorganic pigments wherein hollow particles are preferred from the viewpoint that they have excellent heat conductivity during image fixing (0237-0244.) Nakamura et al teach that the toner image-receiving layer may further include various additives that may be added to improve the thermodynamic properties of

the layer including plasticizers, fillers, matting agents, charge control agents and dispersants (0198) wherein as the filler, various inorganic fillers or pigments such as silica, alumina, titanium dioxide, zinc oxide and calcium carbonate, can be used, with 4nm-120nm porous silica and 4-300nm porous alumina preferred, in an amount of 5 parts by mass to 2000 parts by mass, relative to the dry mass of the binder in the layer where the filler is to be added (0252-0260.) Nakamura et al specifically teach that the filler preferably has a small particle diameter for if the particle diameter is large, the surface of the toner image-receiving layer tends to become rough (0255.) Nakamura et al also teach that it is preferred that the toner image-receiving layer contains a charge control agent to adjust toner transfer and adhesion, and to prevent charge adhesion wherein the charge control agent may be any charge control agent known in the art including surfactants such as cationic, anionic, amphoteric or nonionic surfactants, polymer electrolytes including cation-modified polystyrene and electroconducting metal oxides (0265-0268.) The matting agents can be selected from any known matting agent including inorganic or organic solid particles having an average particle size of 1 to 100 microns in an content of 0.01 to 0.5 g/m2 (0226-0232.) Nakamura et al teach that the toner image-receiving layer is coated so that the amount of coating in mass after drying is preferably 1 g/m2 to 20 g/m2, more preferably 4 to 15 g/m2, with a preferred thickness of 1 to 30 microns, more preferably 2 to 20 microns (0279-0280.) The intermediate layer contains a thermoplastic resin and may also include the same components utilized in the toner image-receiving layer (0108, 0138.) Nakamura et al further teach that the sheet preferably includes a backing layer on the opposite side of the support to the toner-receiving layer and may be the same composition as the toner-receiving layer (0311-0313.) Nakamura et al do not specifically teach the composition of the intermediate layer as

claimed but provide a suggestion to one having ordinary skill in the art to utilize the same additives incorporated in the receiving layer which includes inorganic pigments and discharge control agents. Further, though Nakamura et al do not specifically teach that the discharge or charge control agent is a sulfonated polystyrene or sodium salt thereof as instantly claimed, one having ordinary skill in the art at the time of the invention would have been motivated to include conventional discharge control agents wherein Chartier et al teach the instantly claimed sodium salt of a highly sulfonated polystyrene is a suitable discharge control agent in the coated paper art. Hence, based on the teachings of Chartier et al and the Nakamura teaching of modified polystyrene, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide a discharge control agent, such as a sodium salt of a highly-sulfonated polystyrene, in the paper coating compositions of the invention taught by Nakamura et al in a sufficient amount (such as 6 weight parts as taught in the example by Chartier et al) and molecular weight to provide the desired conductive properties to reduce the electrostatic charges generated by friction in printer or photocopier paper feeds, as taught by Chartier et al (Col. 3, lines 21-59.) Further, one having ordinary skill in the art would have been motivated to utilize routine experimentation to determine the optimum content of each component, the coating thickness or coating weight, and optimum pigment particle size and particle size distribution to utilize in the coating layers based on the desired color, coating and matting properties, and particular end use, wherein ranges as instantly claimed are typical in the art. With regards to Claim 4, though Nakamura et al teach various base materials including natural pulp and synthetic paper, Nakamura et al do not specifically teach the internal bond strength of the base material. However, one having ordinary skill in the art at the time of the invention would have been

motivated to determine a suitable base material and internal bond strength for a particular end use of the printing medium, wherein base materials having an internal bond strength within the claimed range are typically utilized in the art.

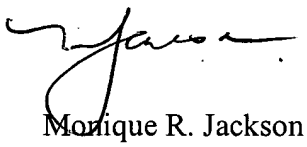
Response to Arguments

7. Applicant's arguments filed 11/3/06 have been fully considered but they are not persuasive and/or moot in view of the new ground(s) of rejection. The Examiner first notes that the Applicant appears to be arguing the references separately. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The Examiner notes that the secondary reference Chartier et al was not utilized to provide a teaching of inorganic pigments and discharge control agents in the base coating layers as argued by the Applicant. Further, the Applicant argues that the claimed invention has a specific inter-layer relationship between the individual layers of the claimed specific composition and that this inter-layer relationship is key to the invention. However, the Examiner notes that there is no showing of unexpected results with regards to the relationship of the claimed two layers, and hence, in the absence of a clear showing, the Examiner maintains her position that the claimed invention would have been obvious over the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Monique R. Jackson
Primary Examiner
Technology Center 1700
January 8, 2007